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Stellar Masses of Star Forming Galaxies in Galaxy Cluster

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We determine the stellar mass of star forming galaxies in the X-ray luminous cluster MS 0451.6-0305 at $z \sim 0.54$. The stellar masses are estimated from fitting model spectral energy distributions (SEDs) to deep, optical UBRIZ observations obtained from WIYN 3.5m telescope and public NIR K-band image from Palomar Observatory telescope. The model SEDs are based on the stellar population synthesis (SPS) model of Bruzual Charlot (2003) and Conroy et al. (2009) that span a wide range of age, star formation history, initial mass function, metallicity and dust content. We measure stellar masses for galaxies down to $M_{\text{star}} \sim 2 \times 10^8 M_{\odot}$.

We find a tight correlation between stellar masses derived from the two SPSs. We compare the derived stellar masses to the dynamical masses for a set of 25 star-forming galaxies. The dynamical masses are derived from high resolution, spectroscopic observations of emission lines from the DEIMOS spectrograph on the Keck telescope. A strong correlation is seen between the dynamical and stellar mass for the galaxies; and the star forming galaxies show fairly constant ratio between stellar and dynamical mass. When comparing to the field sample of Guzmán et al. (2003) of luminous compact blue galaxies, we see an excess of low mass galaxies in the cluster.

Level (Hons, MSc, PhD, other)?

MSc

Consider for a student award (Yes / No)?

Yes

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

Yes

Primary author: Mr RANDRIAMAMPANDRY, Solohery (SAAO/UWC)

Co-author: Dr CRAWFORD, Steven (SAAO)

Presenter: Mr RANDRIAMAMPANDRY, Solohery (SAAO/UWC)

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